Comprehensive Plan for Conservation , Management and Long-term Sustainability of North Carolina's Beaches and Inlets

Beach and Inlet Management Plan

N.C. Dept. of Environment & Natural Resources

Joint Project Between the NCDENR Division of Water Resources and Division of Coastal Management

AND

U.S. Army Corps of Engineers
Wilmington District

Cape Hatteras

Cape Lookout

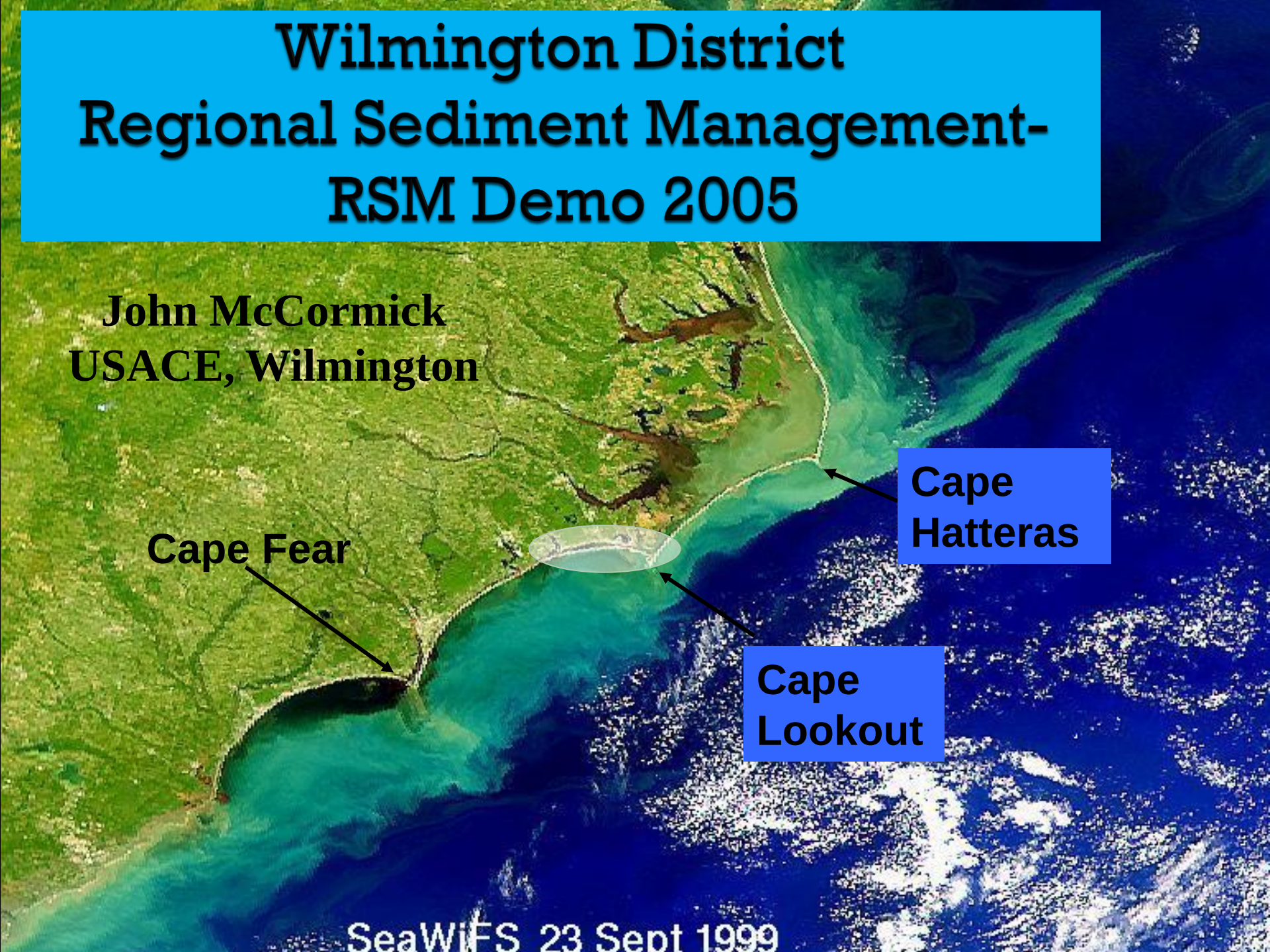
Cape Fear

MOFFATT & NICHOL

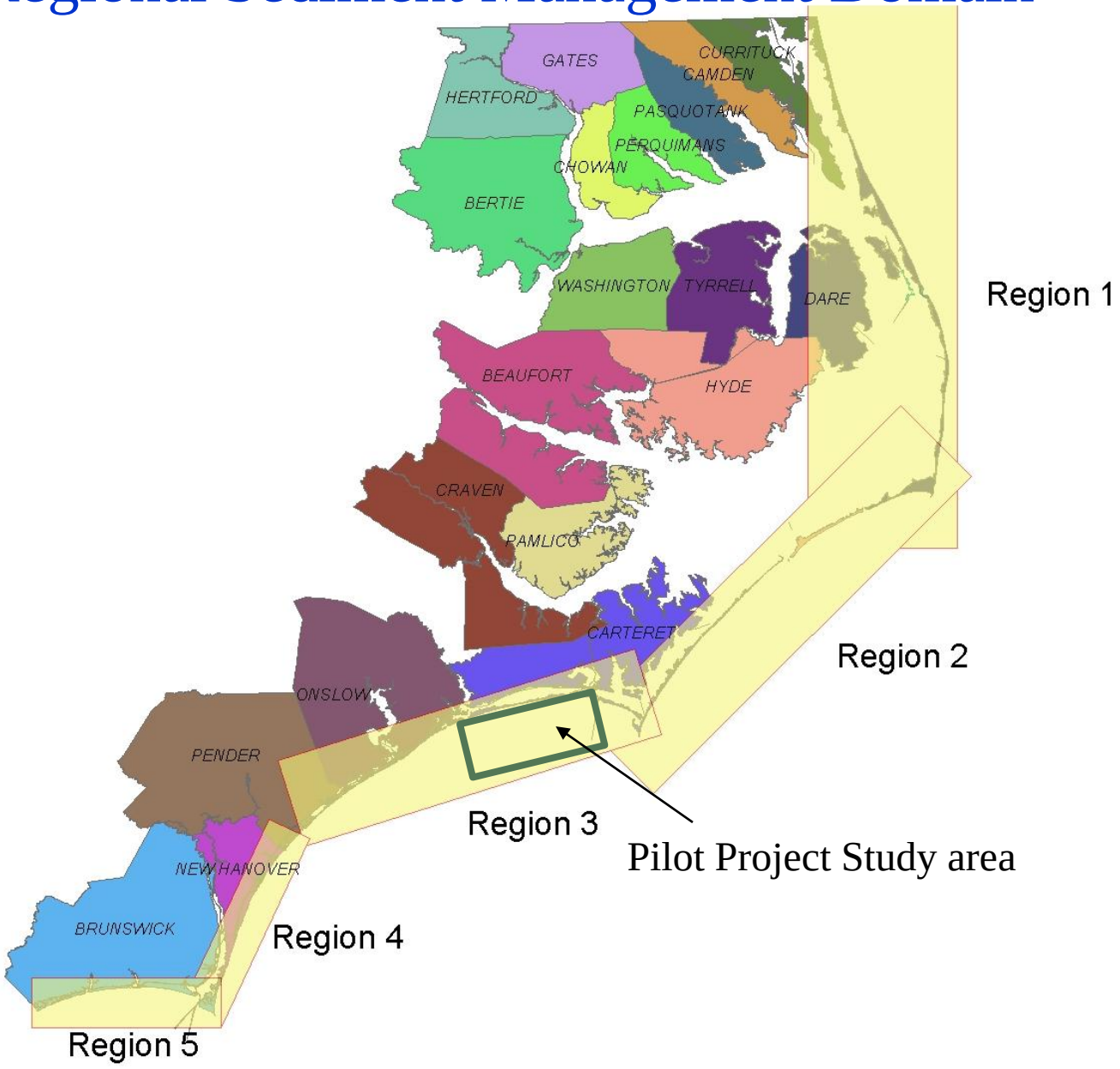
(Contractor)

Wilmington District Regional Sediment Management- RSM Demo 2005

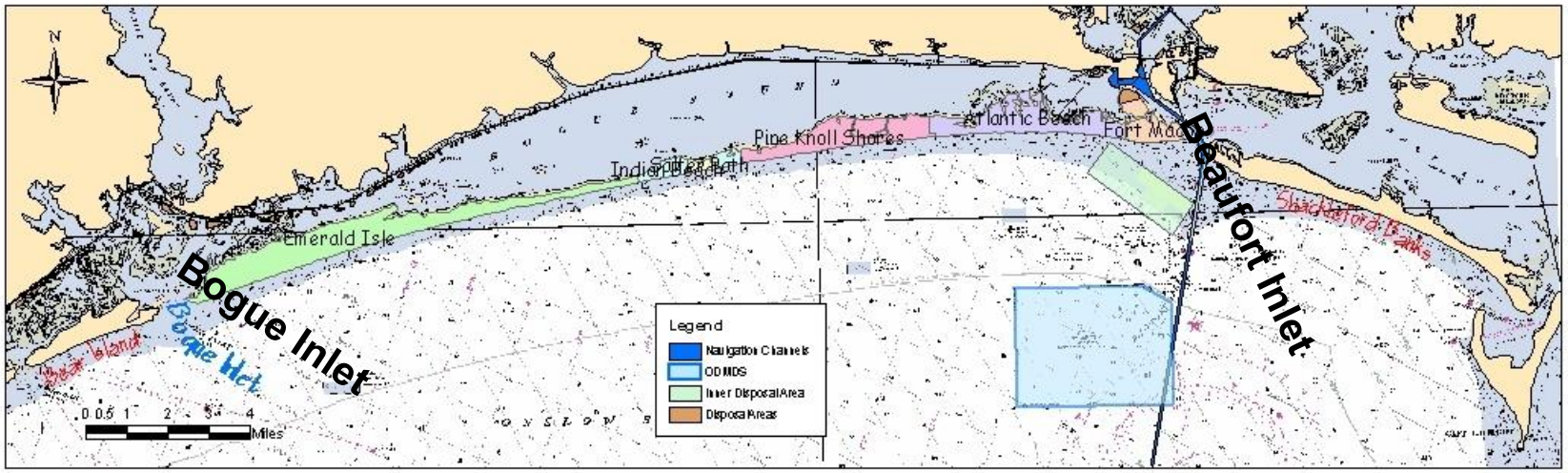
John McCormick
USACE, Wilmington



Regional Sediment Management Domain

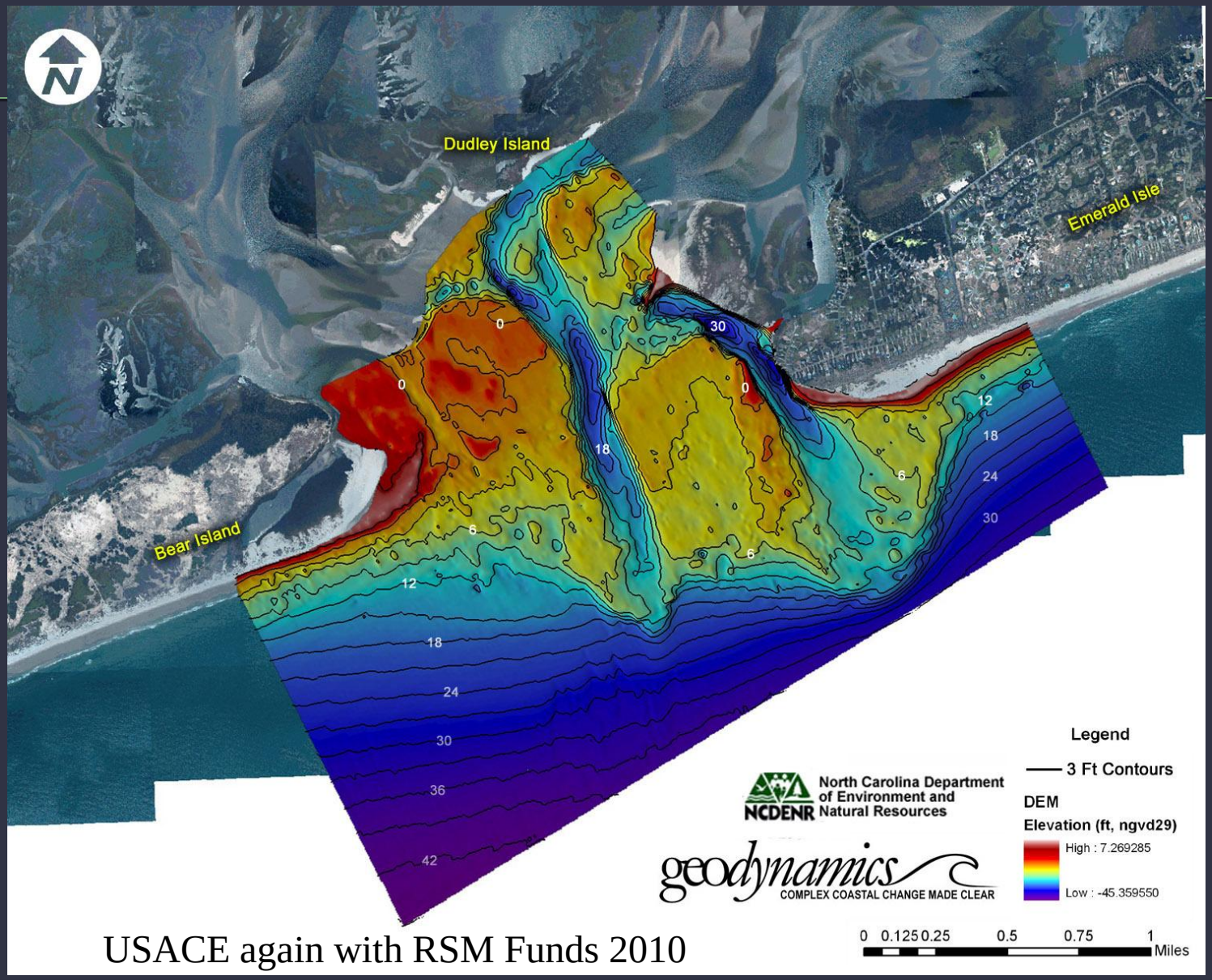


Morehead City Harbor Regional Sediment Management Demonstration/Pilot Study



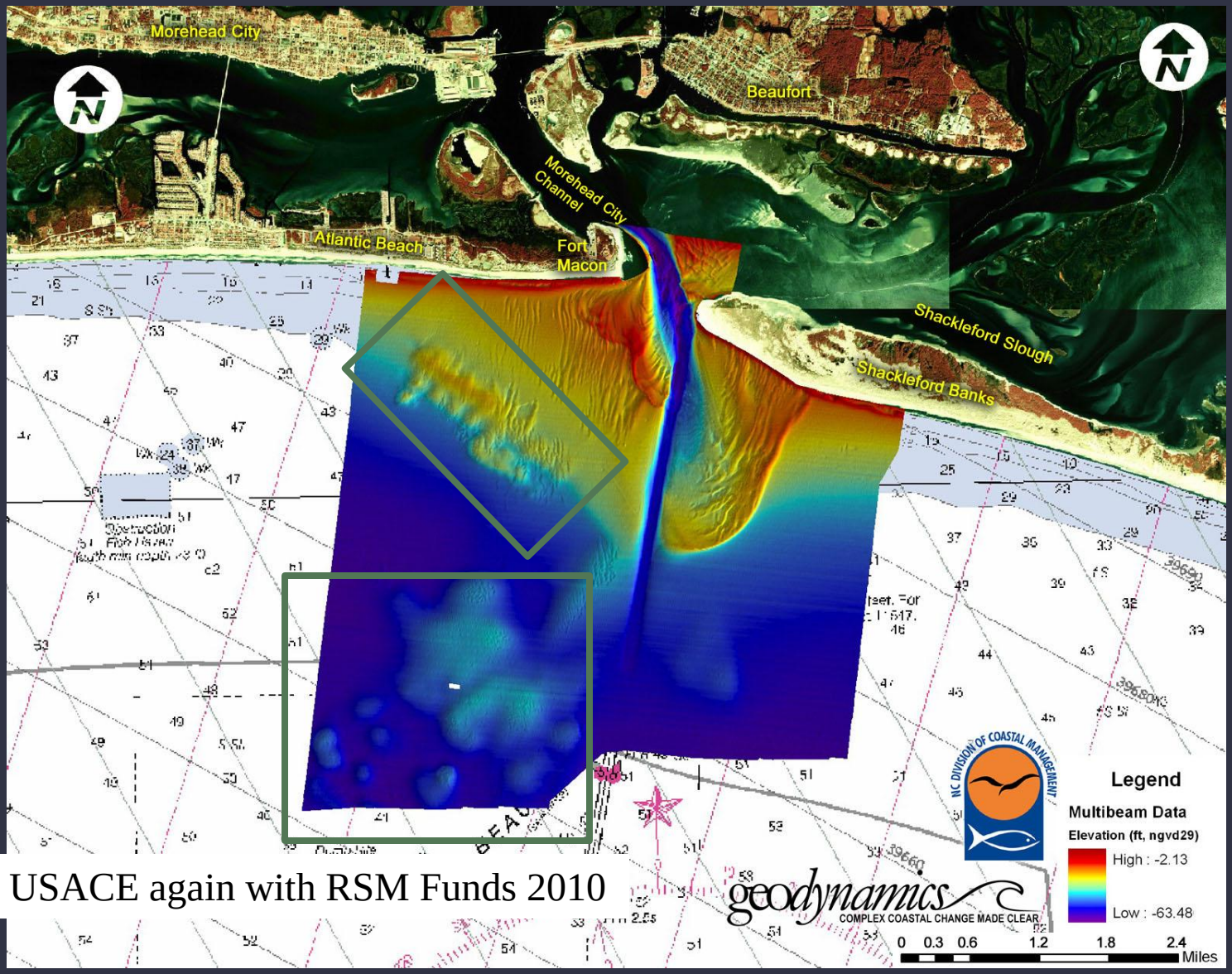
BIMP Region "2C"

Bogue Inlet –RSM Demonstration Project



USACE again with RSM Funds 2010

Beaufort Inlet –RSM Demonstration Project



USACE again with RSM Funds 2010

Genesis of the Beach and Inlet Management Plan Philosphophy

(Dec 2000) - Coastal Beach Movement, Beach Renourishment, and Storm Mitigation – Legislative Research Commission

(July 2001) - HB 1840 – called for Beach Management Plan

***(Dec 2004) Coastal Habitat Protection Plan* – Comprehensive Beach and Inlet Management Plan**

***July 2007 - N.C. General Assembly appropriation to Division of Water Resources-BIMP* ($750,000.00 + $30,000 added later by DCM)**

Better ideas

New Approaches

Resolve long-standing problems

People clarify views

Creativity and Interest

Items Identified In House Bill 1840

- Identify Erosion Rates & Storm Vulnerability At Each Beach Location
- Determine Need For And Effectiveness Of Beach Nourishment
- Coordinate With State And Federal Agencies
- Provide Status On USACE Beach Projects
- Maximize Use Of Sand Dredged From Navigation Channels For Beach Nourishment
- Promote Inlet Bypassing To Replicate Natural Flow Interrupted By Inlets
- Locate Suitable Material For Beach Nourishment
- Consider Regional Context For Beach Communities For Cost-effectiveness
- Provide For Public (Including Handicap) Access
- Recommend Priorities For Beach Nourishment Projects
- Recommend Ways To Maximize Federal Funding
- Hold Public Hearings For Citizen Input

BIMP Project Work Plan (18 months)

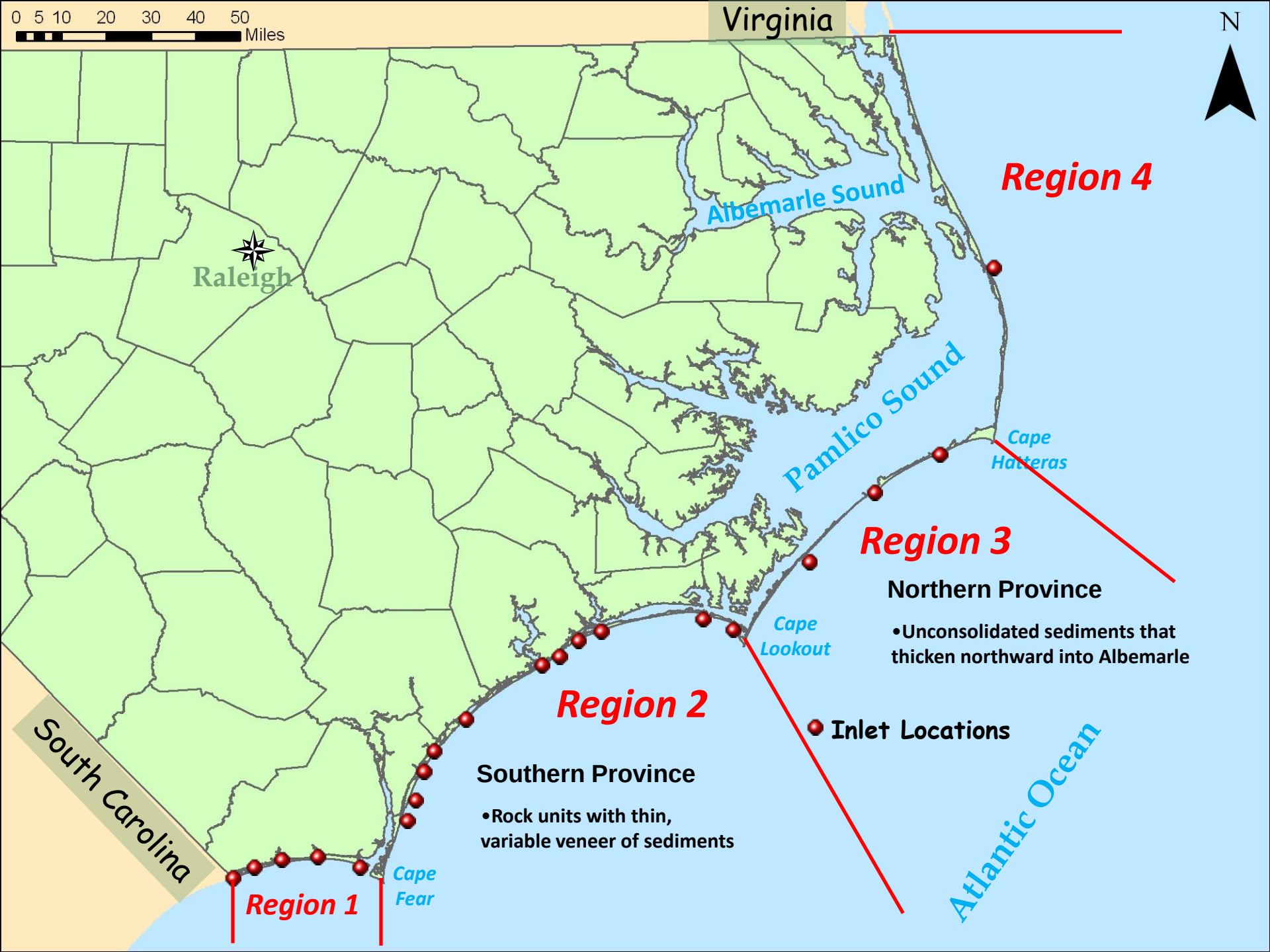
Service 1 – Data Identification & Acquisition

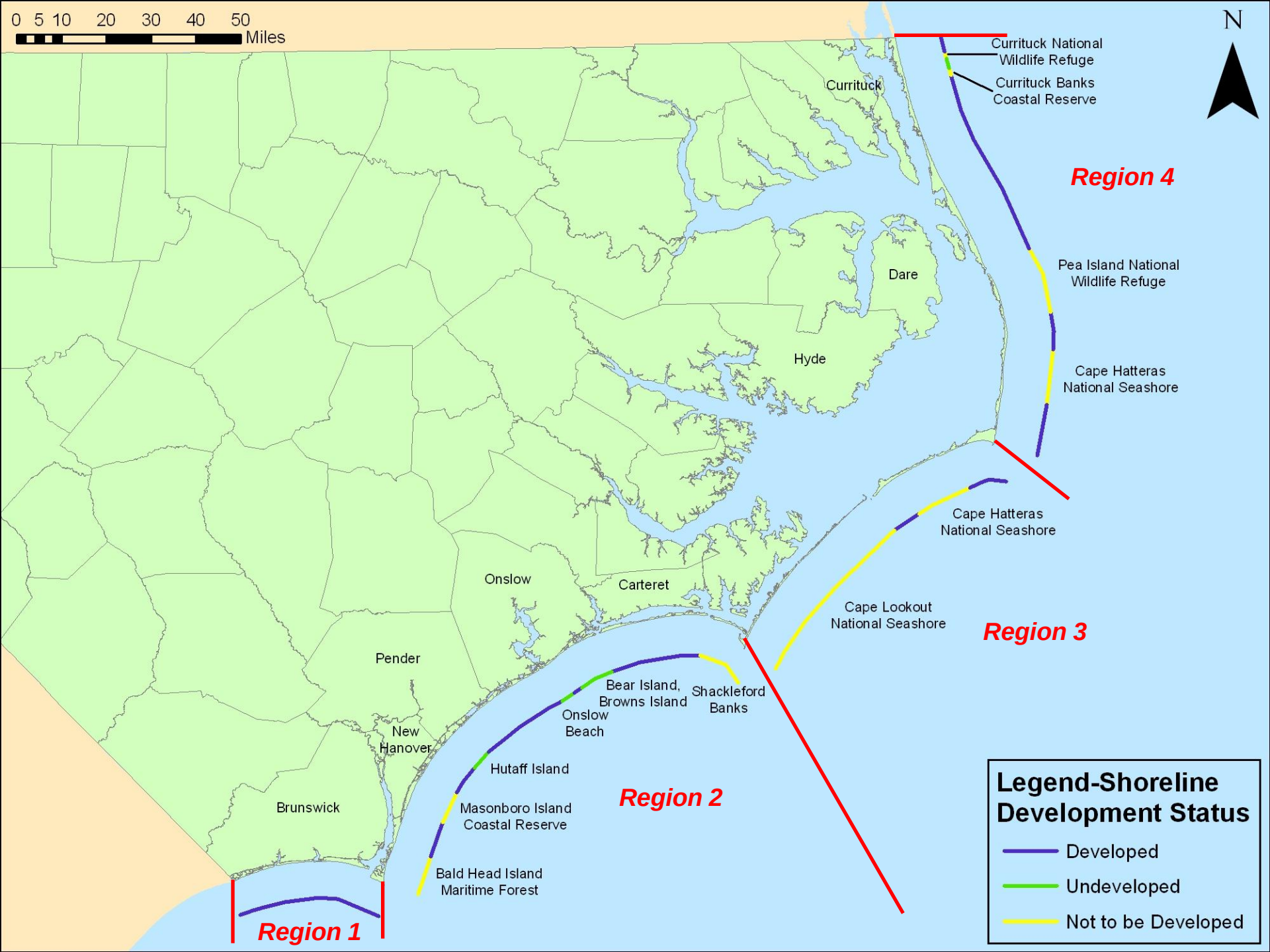
Service 2 – Define Beach and Inlet Management Regions

Service 3 – Develop Preliminary Beach and Inlet Management Strategies

Service 4 – Hold Stakeholder Meetings

Service 5 – Develop Draft and Final Plan


0 5 10 20 30 40 50
Miles
Virginia
N
Region 4
Albemarle Sound
Raleigh
Pamlico Sound
Cape Hatteras
Region 3
Northern Province
•Unconsolidated sediments that thicken northward into Albemarle
Cape Lookout
Region 2
Inlet Locations
Southern Province
•Rock units with thin, variable veneer of sediments
South Carolina
Atlantic Ocean
Cape Fear
Region 1

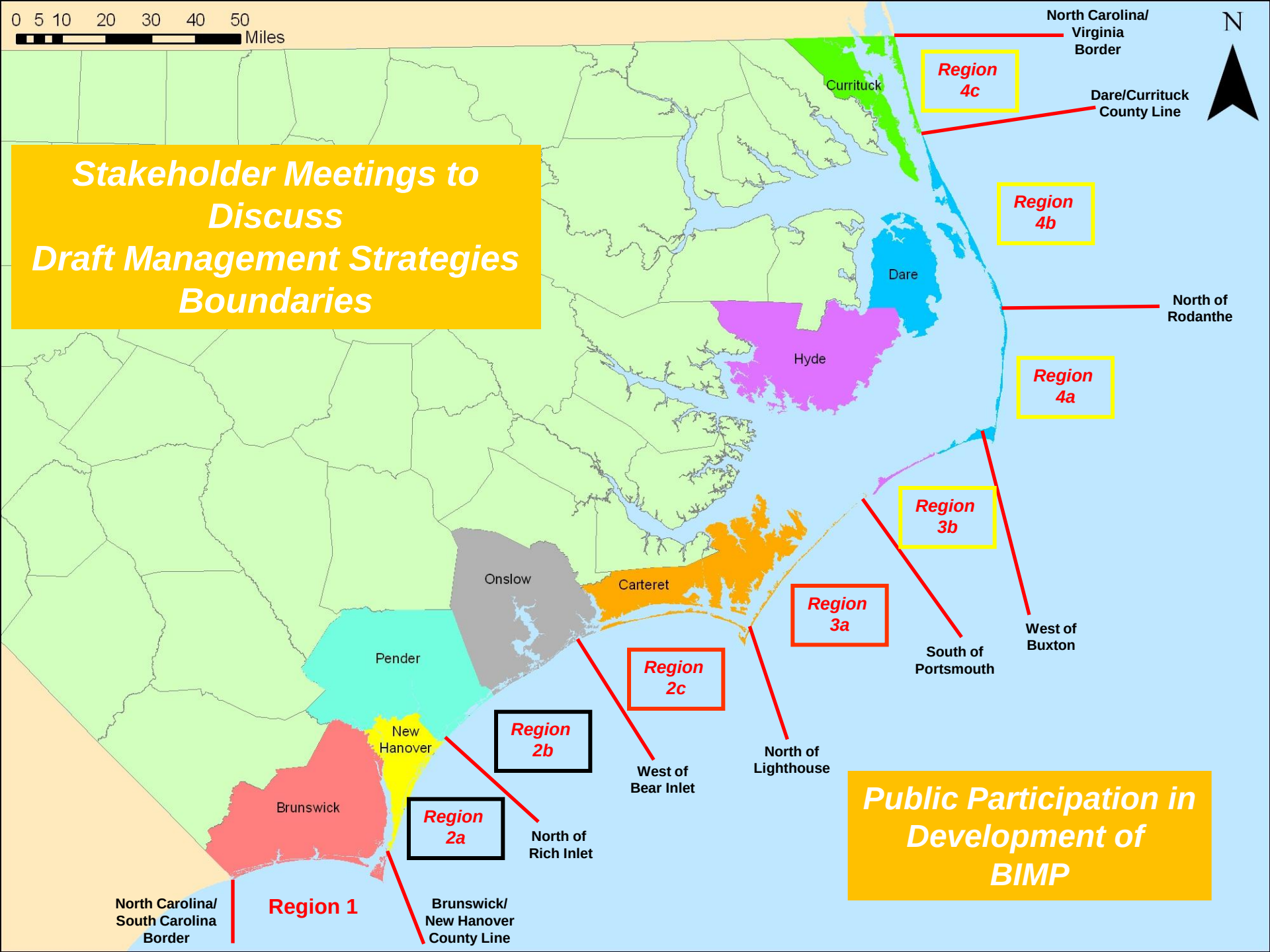

0 5 10 20 30 40 50
Miles
N
Currituck National Wildlife Refuge
Currituck Banks Coastal Reserve
Currituck
Region 4
Dare
Pea Island National Wildlife Refuge
Hyde
Cape Hatteras National Seashore
Cape Hatteras National Seashore
Onslow
Carteret
Cape Lookout National Seashore
Region 3
Pender
Bear Island, Browns Island
Shackleford Banks
Onslow Beach
New Hanover
Hutaff Island
Brunswick
Masonboro Island Coastal Reserve
Region 2
Bald Head Island Maritime Forest
Region 1
Legend-Shoreline Development Status
Developed
Undeveloped
Not to be Developed

Define Beach and Inlet Management Regions

- ✓ Global Regions

  Defined by Geologic Framework and Cape Features

- ✓ Localized Regions
  - ✓ Defined by Numerous Datasets
    - ✓ Geologic Features
    - ✓ Developed/Undeveloped Reaches
    - ✓ Erosion/Accretion Patterns/Rates
    - ✓ Potential Sediment Transport
    - ✓ Potential Sand Sources
    - ✓ **Dredging Considerations**
    - ✓ **Socio-Political Regions**


0 5 10 20 30 40 50
Miles
N
Stakeholder Meetings to Discuss Draft Management Strategies Boundaries
North Carolina/ Virginia Border
Region 4c
Currituck
Dare/Currituck County Line
Region 4b
Dare
North of Rodanthe
Hyde
Region 4a
Region 3b
Region 3a
West of Buxton
South of Portsmouth
Onslow
Carteret
Pender
Region 2c
Region 2b
New Hanover
West of Bear Inlet
North of Lighthouse
Brunswick
Region 2a
North of Rich Inlet
North Carolina/ South Carolina Border
Region 1
Brunswick/ New Hanover County Line
Public Participation in Development of BIMP

RSM Funds for USACE-Wilmington derived from National Program

Benefit of State Investment of $800,000

$600,000/yr for 3 yrs

(Year 1)

e-coastal format for all dredging data (all digital)
Sediment Budgets for Southern Beaches (4)
Coastal Process data

(Year 2)

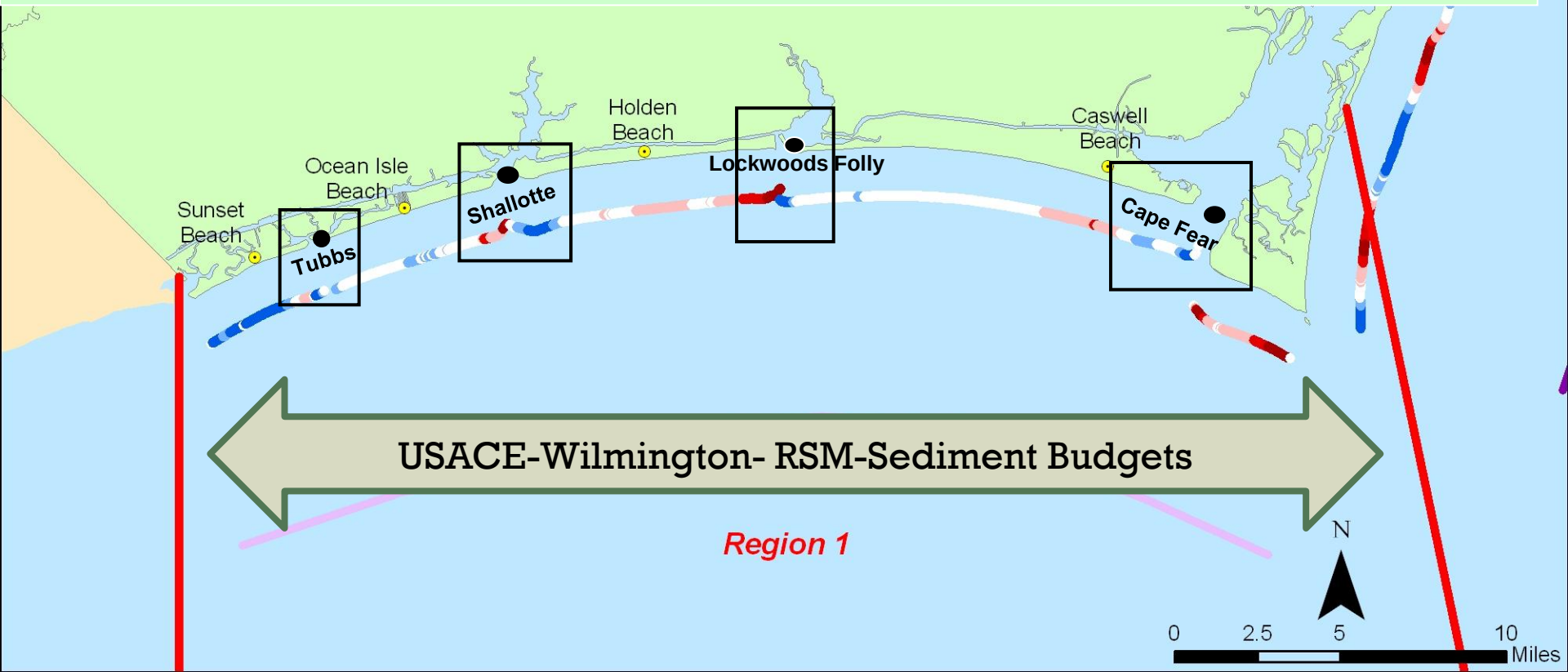
Sediment Budgets for "Region 2" inlets (8)
CASCADE Modeling

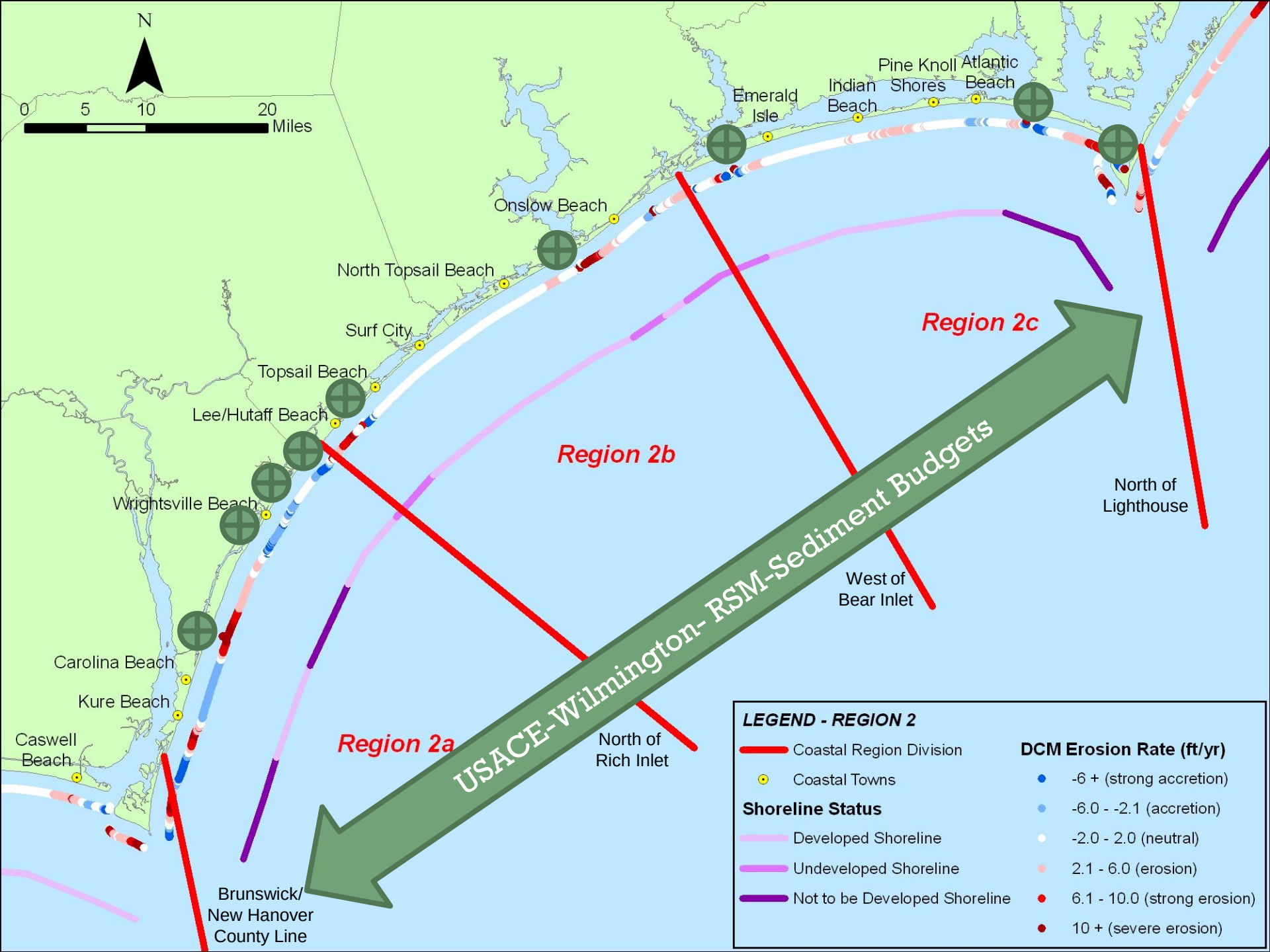
(Year 3)

Keep going NORTH-Discussion with USACE

Location	Number of Times Dredged	Total Amount Dredged (cy)	Pipeline	Currituck	Sidecast
SHALLOTTE RIVER	5	217,161	4	1	0
LOCKWOODS FOLLY INLET	58	3,896,470	37	21	0
LOCKWOODS FOLLY RIVER	33	2,008,234	6	11	16
OAK ISLAND	1	136,688	1	0	0

Location	Number of Time Nourished	Total Amount Nourished (cy)
OCEAN ISLE BEACH	15	5,659,766
MONK ISLAND	3	197,955
HOLDEN BEACH	39	3,913,676
LONG BEACH	3	394,894
OAK ISLAND	5	7,898,400
CASWELL BEACH	2	1,133,200
BALD HEAD ISLAND	9	9,192,364
WILMINGTON HARBOR ODMDS	11	17,082,712

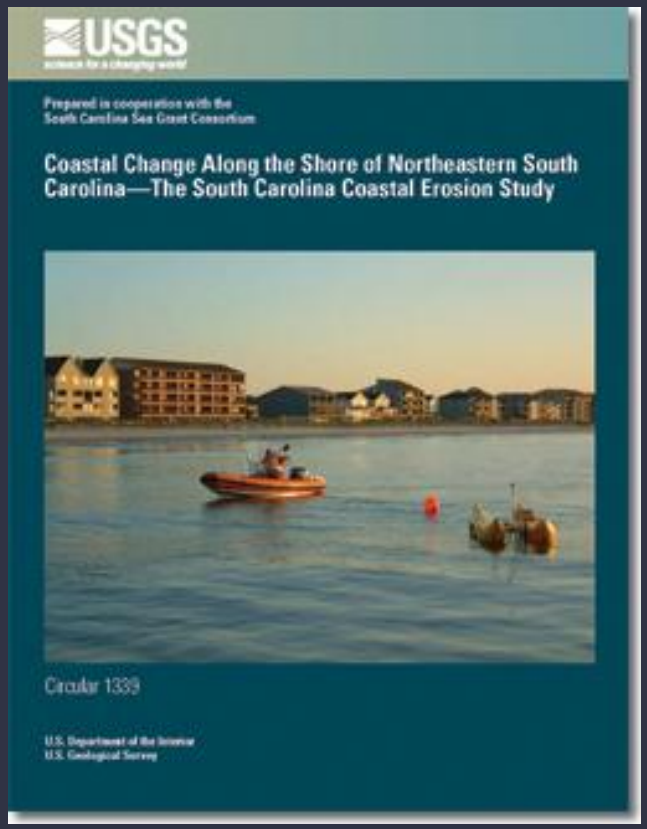


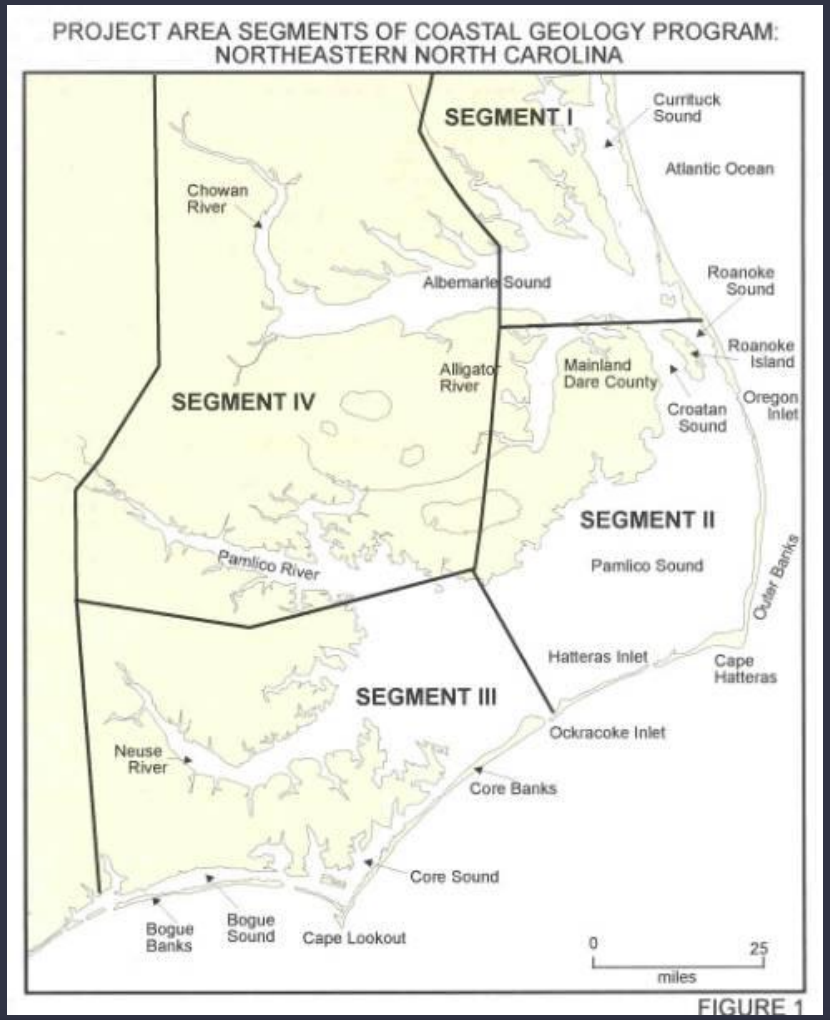

N
0 5 10 20
Miles
Emerald Isle
Indian Beach
Pine Knoll Shores
Atlantic Beach
Onslow Beach
North Topsail Beach
Surf City
Topsail Beach
Lee/Hutaff Beach
Wrightsville Beach
Carolina Beach
Kure Beach
Caswell Beach
Region 2a
Region 2b
Region 2c
North of Rich Inlet
West of Bear Inlet
North of Lighthouse
USACE-Wilmington- RSM-Sediment Budgets
Brunswick/ New Hanover County Line
LEGEND - REGION 2
Coastal Region Division
Coastal Towns
Shoreline Status
Developed Shoreline
Undeveloped Shoreline
Not to be Developed Shoreline
DCM Erosion Rate (ft/yr)
-6 + (strong accretion)
-6.0 - -2.1 (accretion)
-2.0 - 2.0 (neutral)
2.1 - 6.0 (erosion)
6.1 - 10.0 (strong erosion)
10 + (severe erosion)

USGS in North Carolina (NCGS and ECU)

develop the geologic framework and define the process dynamics

Report due - similar to S.C report





New DRAFT CZMA Language-RSM

SECTION 7. NATIONAL PRIORITY: SUPPORT HEALTHY, RESILIENT COASTAL COMMUNITIES AND ECONOMIES.

SECTION 8. NATIONAL PRIORITY: PROTECT AND RESTORE COASTAL ECOSYSTEMS, HABITATS, WATERS, AND UNIQUE RESOURCES.

SECTION 9. NATIONAL PRIORITY: PREPARE FOR CLIMATE CHANGE ON THE NATION'S COASTS AND COASTAL COMMUNITIES.

The Beach and Inlet Management Program Framework composed of 4 Primary components

(1) Regionalization of Coast

- Developed based on common elements in geology, physical coastal processes, shoreline development, erosion patterns and rates, sediment transport pathways, potential sand resource locations, dredging considerations and sociopolitical boundaries.
- Allows for Programmatic Regional Environmental Impact Studies to be completed on a Regional scale versus a project by project approach.
- Permitting processing time is shorter, while Environmental protection is better ability to assess C/SI is better and you take advantage of "efficiencies and economies of scale." Saves money and avoids Local Governments from competing for the same resource-***"SAND WARS".***
- Increases Long-term Sustainability of Coastal Protection Strategies-Shares costs of monitoring, permitting and implementation of various regional strategies across the area - Ease Congressional burden of appropriations for each individual project ???

(2) Data Collection (BIMP Framework cont'd)

Identify and acquire coastal datasets relevant to Beach and Inlet Management (Ongoing-forever)

- All BIMP data to be available for Local Gov/State/Federal agencies Academia and Public.

- Standardized data collection formats across all regions to improve data sharing during planning and emergency situation needs

- Identify data gaps to guide and/or prioritize future data collection and monitoring

(3) Regional Strategy Development (BIMP Framework cont'd)

- Regional Coastal Project Commissions – Serve as an integrated, regional decision-making body with authority to coordinate beach, inlet and waterway projects within the region- Would simplify project coordination between the state and local level (one applicant)
- Diverse types of strategies that could be employed within the regions that include: beach nourishment, greater beach access, removal of structures encroaching onto public beach areas, inlet channel realignment, dredging navigation channels at inlet crossings
- Regional commissions would have the flexibility to raise funds in the manner most appropriate to the region
- House and Store all data relevant to their region on DatabaseServer
- Strategies to be compliant with current State Policies, and must be environmentally responsible operating within environmental constraints and moratoria, and also seizing opportunities to enhance habitat

(4) Long-Term Funding (BIMP Framework cont'd)

Creation of a long-term, stable and predictable financial foundation (≈$40 million/yr)-Coastal property @risk $3.8 billion, Direct expenditures generated $3 billion, over 62,000 jobs, a return of investment of $386:$1

- Would establish a more manageable and predictable level of State expenditures, allowing the state to better plan for coastal needs with less stress on the limited general revenues-huge opportunity to influence coastal policy.
- Reduces financial uncertainties at the local level that often contribute to project delays, increase costs, and disrupt local planning efforts.
- should reflect a ***"shared benefits, shared responsibility"*** approach, where both public and private entities that benefit from the effected resource contribute to its restoration and maintenance.

(4) Long-Term Funding

(BIMP Framework cont'd)

- Dredging industry could better anticipate upcoming work, thereby increasing competition and potentially reducing costs

- Would allow the state to promote and support development of innovative dredging technologies for shallow draft inlets, and beach nourishment placement

Follow the Progress

www.nccoastalmanagement.net/bimp.htm